

CLAIMS

What is claimed is:

1. An image capture device, comprising:
  - an illumination source;
  - 5 a model of said illumination source having a model output; and,
  - an exposure adjustment that is changed to compensate for changes in said illumination source as indicated by said model output.
- 10 2. The image capture device of claim 1 wherein said model has a model input and said model input is an indication of the on times and the off times of said illumination source.
- 15 3. The image capture device of claim 2, further comprising:
  - an ambient temperature sensor producing a sensed ambient temperature
  - wherein said exposure adjustment is also changed to compensate for said sensed ambient temperature.
- 20 4. The image capture device of claim 3 wherein said illumination source is at least one light emitting diode.
5. The image capture device of claim 4 wherein said model of said illumination source comprises a capacitor and a resistor.
- 25 6. The image capture device of claim 4 wherein said model of said illumination source comprises an inductor and a resistor.

- Docket #10991888
- Signature
7. The image capture device of claim 4 wherein said exposure adjustment changes said on times of said illumination source.
8. A method of compensating for changes in an illumination source,  
5 comprising:  
modeling said illumination source; and,  
adjusting an exposure to compensate for changes in said illumination source as indicated by said modeling.
- 10 9. The method of claim 8 wherein said modeling has an input that is an indication of the on times and the off times of said illumination source.
- 15 10. The method of claim 9 further comprising:  
sensing an ambient temperature; and,  
adjusting said exposure to compensate for said ambient temperature.
11. The method of claim 10 wherein said illumination source is at least one light emitting diode.
- 20 12. The method of claim 11 wherein said modeling is performed by charging and discharging a capacitor.
13. The method of claim 12 wherein said charging and discharging is done through at least one resistor.

14. The method of claim 11 wherein said modeling is performed by energizing and de-energizing an inductor.

15. The method of claim 14 wherein the rate of energizing and de-energizing  
5 is determined by at least one resistor.

16. An article of manufacture comprising a program storage medium having computer readable program code means embodied therein for causing the adjustment of an exposure, the computer readable program code means in said article of  
10 manufacture comprising:

computer readable program code means for causing a computer to read an indication of an illumination sources brightness from a model;

computer readable program code means for causing said computer to adjust said exposure based on said indication of said illumination sources brightness.

15

17. The article of manufacture of claim 16 further comprising:  
computer readable program code means for causing said computer to turn on and turn off said illumination source.

20

18. The article of manufacture of claim 17 further comprising:  
computer readable program code means for causing said computer to indicate to said model the on times and off times of said illumination source.

19. The article of manufacture of claim 18 further comprising:

computer readable program code means for causing said computer to obtain an indication of an ambient temperature; and,

computer readable program code means for causing said computer to adjust said exposure based on said indication of said ambient temperature.

5

20. The article of manufacture of claim 19 wherein said illumination source is at least one light emitting diode.

10 21. The article of manufacture of claim 20 wherein said model is a series resistor-capacitor circuit and said indication of said illumination sources brightness is obtained from the voltage across said capacitor.

15 22. The article of manufacture of claim 20 wherein said model is a series resistor-inductor circuit.

23. An image capture device, comprising:  
illumination means;  
modeling means, said modeling means producing a modeling means output  
that is indicative of said illumination means relative brightness; and,  
exposure adjustment means for changing and exposure to compensate for  
changes in said relative brightness of said illumination means as  
indicated by said modeling means output.

24. The image capture device of claim 23 wherein said modeling means has a modeling means input and said modeling means input is an indication of the on times and the off times of said illumination means.

5           25. The image capture device of claim 24, further comprising:  
ambient temperature sensor means for producing a sensed ambient  
temperature wherein said exposure is also changed to compensate for  
said sensed ambient temperature.

10          26. The image capture device of claim 25 wherein said illumination means is  
at least one light emitting diode.

27. The image capture device of claim 26 wherein said modeling means  
comprises at least a capacitor and a resistor.

15          28. The image capture device of claim 26 wherein said modeling comprises at  
least an inductor and a resistor.

29. The image capture device of claim 26 wherein said exposure is adjusted by  
20        changing said on times of said illumination source.